Message

From: Fleisig, Erica [Fleisig.Erica@epa.gov]
Sent: 2/24/2021 12:33:30 AM
To: Adams, Katie [Adams.Katie@epa.gov]; Kusnierz, Lisa [kusnierz.lisa@epa.gov]
CC: Kesler, Karen [Kesler.Karen@epa.gov]; Beaman, Joe [Beaman.Joe@epa.gov]; Jankowski, Mark [jankowski.mark@epa.gov]; Macchio, Lisa [Macchio.Lisa@epa.gov]; McBride, Theresa [McBride.Theresa@epa.gov]; Herger, Lillian [Herger.Lillian@epa.gov]; cmebane@usgs.gov
Subject: RE: Selenium methods questions from ND

Lisa and Katie, thank you both so much for the quick and thorough responses! I'll confer with Karen and Joe (cc'd) to see if we have any other questions for you all before circling back with ND, but this has been extremely helpful.

Thanks again,
Erica

Erica Fleisig
Team Leader, Regional Water Quality Standards Branch
Office of Science and Technology, U.S. EPA
(202) 566-1057

From: Adams, Katie <Adams.Katie@epa.gov>
Sent: Tuesday, February 23, 2021 5:08 PM
To: Kusnierz, Lisa <kusnierz.lisa@epa.gov>; Fleisig, Erica <Fleisig.Erica@epa.gov>
Cc: Kesler, Karen <Kesler.Karen@epa.gov>; Beaman, Joe <Beaman.Joe@epa.gov>; Jankowski, Mark <jankowski.mark@epa.gov>; Macchio, Lisa <Macchio.Lisa@epa.gov>; McBride, Theresa <McBride.Theresa@epa.gov>; Herger, Lillian <Herger.Lillian@epa.gov>; cmebane@usgs.gov
Subject: RE: Selenium methods questions from ND

Hi all,

I will try to address some of the aspects that are relevant to the analytical work at the lab. I'm sure others can fill in some of the other pieces.

Holding time: The HT begins at the time of collection. Frozen tissue has a 2 year HT for most metals, and 1 year for mercury. Obviously there is a small window where the fish are thawed in order to dissect them. Also, our process is to freeze dry the tissue for metals analysis (not mercury though). We consider freeze dried material as stable as frozen material.

How do we grind up the samples?: Theresa has done a lot of this work so may provide more details. Some of the smallest fish have been chopped up by hand (scalpel, on a watchglass, for example). Most fish and/or fillets are blended in food processors. We blend them prior to freeze drying, and then perform further reduction of "clumps" after freeze drying. This may be done with a mortar and pestle, or again with a food processor.

Digestion method: We use microwave digestion, and I highly recommend this for tissue digestion. It is highly effective at breaking down the fats and other organic materials. We cite 3052 for the microwave digestion. 3052 has a lot of options for acids used. We use primarily nitric acid with some hydrochloric acid and hydrogen peroxide. HF is not necessary or desirable. If you do not have a microwave available, 3050B would work OK as well.

Analytical method: Yes, 200.8 (or 6020, both are ICPMS methods) and 200.9 are methods with sufficiently low detection limits.

I hope this helps.

Katie Adams
Inorganic Chemistry Technical Lead,
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From: Kusnierz, Lisa <kusnierz.lisa@epa.gov>
Sent: Tuesday, February 23, 2021 7:49 AM
To: Fleisig, Erica <Fleisig.Erica@epa.gov>
Cc: Kesler, Karen <Kesler.Karen@epa.gov>; Beaman, Joe <Beaman.Joe@epa.gov>; Jankowski, Mark <jankowski.mark@epa.gov>; Macchio, Lisa <Macchio.Lisa@epa.gov>; McBride, Theresa <McBride.Theresa@epa.gov>; Adams, Katie <Adams.Katie@epa.gov>; Herger, Lillian <Herger.Lillian@epa.gov>; cmebane@usgs.gov
Subject: RE: Selenium methods questions from ND

Hi Erica,

I'm adding several folks to this email chain – Theresa McBride and Katie Adams work at our Manchester Lab and have been doing the fish tissue selenium analysis for the Kootenai River Project. Lil Herger is a fish biologist who has provided input on sampling and led the dissections with lab staff. Chris Mebane is the PI for USGS and has been leading the field effort, and is most familiar with the prep procedures. Also, he has been coordinating with the fish and game agencies in MT and ID to piggyback on existing collection efforts, which has eliminated the need for us to obtain collection permits for the fish. In general, a suite of measurements are collected for each fish in the field but the fish have been sent on ice whole to the lab for processing.

I am attaching the Quality Assurance Project Plan as well as a recent Sample Plan Alteration "Form" (SPAF 4) that was completed prior to the fall 2020 work as it has quite a bit of additional detail about sample prep/processing. I also went ahead and attached SPAF 3, which is for the burbot sampling conducted by the Kootenai Tribe of Idaho. You'll note that Hg is also included. That was done opportunistically since the fish were already being collected for Se analysis. Those results have been quite informative as well but it certainly adds additional time and costs to the overall analysis.

I think the folks added to this email chain should be able to help provide the additional details ND is seeking but let me know if I can be of additional assistance.

Lisa Kusnierz
Watersheds Section
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From: Fleisig, Erica <Fleisig.Erica@epa.gov>
Sent: Tuesday, February 23, 2021 10:08 AM
To: Jankowski, Mark <jankowski.mark@epa.gov>; Kusnierz, Lisa <kusnierz.lisa@epa.gov>; Macchio, Lisa

<Macchio.Lisa@epa.gov>
Cc: Kesler, Karen <Kesler.Karen@epa.gov>; Beaman, Joe <Beaman.Joe@epa.gov>
Subject: Selenium methods questions from ND

Hi R10 folks,

North Dakota is asking us some questions about selenium sampling and analytical methods (see below) and we were wondering if you have lab contacts (Karen, cc'd, mentioned that a R10 lab helped with processing of some of the Kootenai River burbot data) who could help provide input on these questions? If there is someone you could point us to or add to this email chain, that would be much appreciated.

Thank you!
-Erica

Erica Fleisig
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From: Wax, Peter N. <pwax@nd.gov>
Sent: Tuesday, February 23, 2021 9:08 AM
To: Beaman, Joe <Beaman.Joe@epa.gov>; Kesler, Karen <Kesler.Karen@epa.gov>; Fleisig, Erica <Fleisig.Erica@epa.gov>; Wirick, Holiday <wirick.holiday@epa.gov>
Cc: Aaron Larsen <allarsen@nd.gov>; Wert, Joshua E. <jewert@nd.gov>; jnett@nd.gov; Ussatis, Todd J. <tussatis@nd.gov>; Quarnstrom, James E. <jquarnst@nd.gov>
Subject: Things 4 Se Sampling 2021

Dear All:

Yesterday Holly provided me notes on the selenium call last week Wednesday. It woke me up that there is not a lot of time to get everything ready. Spring is nearly here. In the next 3 to 4 weeks a QAPP with appropriate SOPs will need to get put together and any missing supplies ordered.

List of things I could use help with:

1) Methods for Water and Fish:
    a. Flesh: Confirm that 30.50.B is appropriate.
        i. Holding time once prepped and frozen
    b. Water: Dissolved and 200.8 or 200.9?
2) SOPs for flesh (I believe someone offered to Region 10 or Montana's QAPP and SOPs
    a. Field Prep (This is very important. The state lab will deliver I can get them a good sample.
        i. Ice or do we need to freeze (dry ice) in the field.
        ii. How to bag (Plastic or glass?)
        iii. Prep (grinder or hand homogenizing?)
        iv. Stainless steel equipment?
3) Target Species
    a. Which species should be targeted Based on the attached fish list

Obviously more stuff will surface but this should get us going.

My hope is if there are at least a few species (based on eating habits) that might shed additional light for criteria development. If so we target additional samples to develop a subset of these animals as well.

Pete

From: Wert, Joshua E. <jewert@nd.gov>
Sent: Thursday, February 18, 2021 1:52 PM
To: Wax, Peter N. <pwax@nd.gov>
Cc: Larsen, Aaron L. <allarsen@nd.gov>; Nett, Joseph H. G. <jnett@nd.gov>
Subject: Eco 46 Fish Data 2016

Good Afternoon,

I have attached the excel file with 2016 fish data for eco 46. If there is any other information that you would like just let me know.

Josh

Joshua Wert
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